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GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

MEETING OF THE SOCIETY. A regular meeting of the Society was held at the Engineering Societies' Building, No. 29 West Thirty-ninth St., on Tuesday evening, February 21st, 1911. Vice-President Greenough in the Chair.

The following persons were elected to Fellowship:

William Gould Brokaw,
Stephen Pearson Brown,
Frederick S. Dellenbaugh,
William B. Dunning,
Max Pam,
J. G. Phelps Stokes,
Charles C. Thain,
John Clark Udall,
Paul M. Warburg,
George H. Warner.

The Chairman then introduced Mrs. Charles Schaeffer who addressed the Society on "At the Sources of the Athabaska and Saskatchewan Rivers." For several years Mrs. Schaeffer has made long excursions among the Canadian Rockies to the north of the Canadian Pacific R.R. Her lecture related to the mountain system as far north as Mt. Robson, which has seldom been described and pictured for lecture audiences. The stereopticon views were superior and the large audience listened with great interest to Mrs. Schaeffer's discourse.

AMERICA

PROF. ELLSWORTH HUNTINGTON WILL RENEW HIS WORK IN THE SOUTHWEST. Prof. Huntington is going to the southwestern part of the country again this season as Research Associate of the Carnegie Institution, to continue the work of last year. His researches last season were confined chiefly to regions where archæologists had never done much and he now plans to visit some of the well-known ruins. He will spend a month or more in New Mexico, another in Arizona and then he proposes to go on to California for two or three months, to study the same problems there under quite different conditions.

EXPEDITION TO LOWER CALIFORNIA. The steamer *Albatross,* sailed from San Diego on Feb. 25, on a two months' collecting Expedition to Lower California. The American Museum of Natural History and the United States Bureau of Fisheries, are cöoperating in the expedition. Dr. Charles H. Townsend, Acting Director of the Museum, commands it, and is accompanied by seven investigators and collectors. The work will begin with deep sea dredging to Guadalupe Island, 250 miles from San Diego extending to depths of two and a half miles. Mr. G. C. Bell of the American Museum will make molds of the various deep sea fishes and invertebrates as soon as collected A fishery survey of the peninsula of Lower California will be made and there will also be work on shore. The peninsula will be studied on both coasts and the collectors will procure mammals, birds, reptiles and fishes, many of which are of special interest because they are peculiar to the locality.

GEOLOGICAL WORK ALONG THE SANTE FÉ R.R. A recent investigation of the geology of parts of West Central New Mexico and Central Arizona from Albuquerque to the region west of the Grand Canyon of the Colorado has been carried on by N. H. Darton (A Reconnaissance of Parts of Western New Mexico and Northern Arizona, *Bull.* 435, U. S. Geol. Surv., 1910) in connection with the study of underground water. An interesting feature of this study is the detailed geological map (Pl. XVI) of part of the Grand Canyon showing, on Matthes' superior topographic map, the relation of the several resistent and weak rock strata to the cliffs and slopes of the canyon walls. The mapping of faults in the region emphasizes the fact that the main canyon is a stream valley, pure and simple, and absolutely independent of fault rifts. Several tributary canyons follow the general line of faults, but these are doubtless due to zones of weakness here rather than original fault cracks. The canyons of Bright Angel Creek and Garden Creek, the latter followed by the Cameron Trail from the Grand Canyon railway station to the Colorado river, follow a fault but are not otherwise different from the neighboring tributaries. The photographic illustrations in the report are superb. LAWRENCE MARTIN.

RELATION OF CLIMATE TO CRANBERRY GROWING. The cultivation of cranberries, mainly confined to Massachusetts, New Jersey, and Wisconsin, has climatic relationships which have recently been studied by H. J. Cox (Frost and Temperature Conditions in the Cranberry Marshes of Wisconsin, U. S. Dept. of Agric., Weather Bureau Bull. T, No. 443, 1910). The annual crop in Massachusetts is about 300,000 barrels, in New Jersey 150,000 and in Wisconsin 75,000; and in each state, where the cranberries are always raised on bottom lands, there is much danger from frost. If the cranberry lands are (a) drained, (b) sanded, or (c) cultivated, reducing leaf area, less heat is lost at night by radiation, more heat is gained during the daytime, and the danger from frost is reduced. Prediction of frost by Weather Bureau observers is of the greatest value to cranberry growers. LAWRENCE MARTIN.

ASSOCIATION OF AMERICAN GEOGRAPHERS. The seventh annual meeting was held at Pittsburg, Dec. 29-31. About twenty-five members were present and the attendance of members and non-members ranged from twenty-five to fifty. Twenty-five papers were read, not including those presented by title. The subject of President H. C. Cowles' address was: "The Causes of Vegetative Cycles." Evening lectures were given by Dr. Cowles on the subject "The Origin and Destiny of the Everglades" and by Prof. Mark Jefferson, on "Rocky Mountain Forms." A round table conference conducted by Prof. Rollin D. Salisbury of the University of Chicago upon the topic "The Purposes of Geographic Instruction and the Phases of the Subject best Adapted to these Purposes" was marked by strong interest and vigorous discussion.

The officers nominated for 1911, were duly elected and the full Council for the year is as follows: President, Ralph S. Tarr; First Vice-President, Alfred H. Brooks; Second Vice-President, Henry G. Bryant; Secretary, Albert Perry Brigham; Treasurer, Nevin M. Fenneman; Councillors; R. E. Dodge, W. M. Davis, Herbert E. Gregory.

The following were appointed delegates to the Tenth International Geographical Congress to be held in Rome, in October, 1911: W. M. Davis, H. C. Cowles, R. S. Tarr, H. W. Fairbanks, A. P. Brigham, and Cyrus C. Adams.

A. J. COLLIER. Mr. Collier, formerly connected with the U. S. Geological Survey, has accepted a position as head of the Department of Geology in the University of Oregon.

SOURCE OF THE AMAZON. In a paper by Dr. Wilhelm Sievers on his recent explorations among the Cordilleras of Ecuador and Peru, (*Zeitsch.* of the Berlin Geogr. Soc., No. 8, 1910), he treats in detail of his work among the headwaters of the Marañon, which resulted in his determination, apparently, of the ultimate source of the Amazon. He says that the distinguished explorer Raimondi was mistaken when he announced the Nupe as the most important of the three rivers whose united waters form the Upper Marañon. Dr. Sievers found that the Lauicocha R. carries much more water, extends farther south, and is the greatest of the Marañon sources. He traced this river to its ultimate springs on a snow mountain called San Lorenzo in the Cordillera de Huayhuash and to the lagoons Santa Ana, Caballo Cocha, Anka Cocha and Tinki Cocha about 15,580 feet above sea level. Here the Lauicocha is born and its pure blue waters are rightly entitled to the distinction of being the ultimate source of the Amazon. Farther down the river, is Lake Lauicocha, which is designated on Peruvian maps as the head source of the Amazon, the fact being however, that the real source is nearly 100 miles to the southwest of this lake.

NITRATE RESOURCES OF CHILE. According to the *Mercurio* a leading newspaper of Santiago, Chile, there are 220 million tons of nitrate in government land that could be worked now. At the present rate of increase of the consumption it is calculated that this will last about sixty years; and taking into account the probable quantity of nitrate that remains still to be discovered, it is thought that there is a supply sufficient for at least 100 years.

DR. BRANNER GOING TO BRAZIL. Dr. J. C. Branner, Professor of Geology, at the Leland Stanford Jr. University, Cal., will start on April 15 with six assistants to explore the western part of the north coast of Brazil. The special object will be to determine how far the distribution of Brazilian fauna is affected by the obstruction of the Amazon River. The government of Brazil will provide the explorers with a gunboat.

AFRICA

CLIMATE AND RAINFALL OF SOUTH AFRICA. In the South African Supplement of the *London Times,* Nov. 5, 1910, Mr. R. T. A. Inness, Director of the Transvaal Observatory, has an excellent short paper on the climate and rainfall of South Africa. Over most of the territory about three-quarters of the rainfall comes in summer. On the other hand, there are notable exceptions. For example, over the Cape Peninsula and for some distance inland the chief rains occur in winter, and along a narrow strip of the southeast coast the rainfall is fairly equally distributed over the whole year. Immediately to the south of German Southwest Africa and some way north of the Cape Peninsula the country is practically rainless. At the principal towns of South Africa, where observations have been taken for the longest periods, the mean temperatures of the warmest month average between 68° and 77°; of the coldest month, between 47° and 65°; the absolute maxima range from 94° to 111°, and the absolute minima from 16° to 34°. The means for the year range between 59° and 72° at these same stations.

The High Veldt of the Transvaal and Orange Free State has an average summer rainfall of from 15 inches in the west to 25 inches in the east. The summer rainfall comes largely in the form of short, intense showers. In good years the eastern half of the Union is visited by rains of a monsoonal type, and when these rains come over a succession of several years the water-level is raised, and lakes and "pans" are filled with water which will last throughout several dry seasons. There has recently been a dry period of some 20 years in this region, but the last two seasons' records seem to indicate a return to a wetter period. Thunderstorms and hail are very rare over the Cape Peninsula and district, but violent thunderstorms are frequent over the Transvaal and Orange Free State, where destructive hailstorms frequently do considerable damage.

The cloudiness is very small in amount, averaging but 31% over the Transvaal province. The soil dries quickly under the bright sunshine. During the day there is almost always a breeze, which dies down at sunset. The dry soil and the wind are together responsible for the dust, which is one of the disagreeable features of the climate. Snow is not uncommon in Basutoland and in parts of Cape Colony. At very rare intervals it falls in the Transvaal, as was the case in August, 1909, when 14 inches of snow fell in Johannesburg in 26 hours. R. DeC. Ward.

The Suez Canal. The commercial movement through the Suez Canal in 1910, was 22,434,661 tons, of which 8,429,041 tons were carried from the Mediterranean to the Red Sea, and 14,005,620 tons from the Red Sea to the Mediterranean. The total tonnage through the Canal in 1910 was 2,510,483 larger than in 1909.

ASIA

Bird Migrations and Weather. Dr. W. R. Eckhardt (*Das Wetter,* 1910, No. 10) has been investigating the meteorological conditions of bird migration in Europe, with some interesting results. He finds that the general direction of migration of the birds over central Europe in spring is towards the northeast, while southerly winds are usually blowing at the earth's surface. This results from the fact that a cyclone over the British Isles produces a southerly wind in Germany, while above the surface, in accordance with the law of change of direction of cyclonic winds with altitude, the direction gradually changes more and more towards the west. The birds make use of this upper current in order to carry them towards the northeast, where their breeding grounds are situated. The fact, noted by many observers, that migrating birds often fly "against" the wind, or obliquely to the wind, thus finds simple explanation: they are migrating with the upper currents, which are not the same as those on the surface.

Observations of the temperatures of the free air made at Hamburg and Aachen during March 18-19, 1909, at the time of maximum bird migration, showed that the birds must, at that time of the year, almost always fly in air strata whose temperatures are below the freezing point. Pressure distribution seems to be the most important meteorological factor controlling bird migration. According to Marek the advances of barometric maxima from the north toward central and southern Europe are to be considered as the causes of the beginnings of the autumn migrations, while the advances of the sub-tropical high pressure area from the Azores or from the southeast are followed by the migrations of spring. R. DeC. Ward.

POLAR

The Zeppelin Study Expedition to Spitzbergen. The party led by Prince Henry of Prussia, which left Germany last season to make studies in Spitzbergen, that might help towards the practical participation of dirigible balloons in Polar exploration, returned safely home. Prof. E. von Drygalski, the commander of the German Antarctic Expedition on the *Gauss,* recently gave some facts concerning the work of the party at a meeting of the Berlin Geographical Society, (*Zeitschr.* of the Berlin Society, No. 10, 1910). Among other participants in the expedition were Count Zeppelin, Dr. Hergesell, the meteorologist, Prof. Reich, and other scientific men. The funds were provided chiefly by Privy Counselor Friedländer-Fuld, the North German Lloyd loaned the services of its steamer *Mainz* and Count Zeppelin, and the scientific staff planned the work. The Norwegian sealing vessel, *The Phoenix,* was engaged for ice navigation, and the yacht *Carmen* was taken along for in shore work. A captive balloon was part of the equipment.

Prof. von Drygalski says that one result of the trip is proof that the dirigible balloon can be brought down to the ice safely, and anchored quickly by an iron appliance, which was successfully tried with the Zeppelin balloon. It is believed the anchor would hold the balloon in the face of a severe windstorm, as it held fast in the ice, though heavy stress was brought to bear upon it, by means of the capstan of the *Mainz.*

Most of Prof. von Drygalski's paper is given to the general scientific work of the party, but he says he is free to declare that a number of fundamental facts and considerations of importance, in all attempts to use airships for exploration have been established.

The widely spread announcement that, encouraged by the success of these studies, a party will go to Spitzbergen and attempt in July next, to reach the North Pole by balloon, is evidently erroneous. Prof. von Drygalski announces that the entire party last year was convinced that no attempt for North Polar exploration should be permitted until the airship and especially its motor have become more safe and practical than they are now.

MR. LEFFINGWELL IN ALASKA. Mr. Ernest de K. Leffingwell, under date of Sept. 22, 1910, writes from his camp on Flaxman Island, having just returned from a three-weeks trip to the westward, in his yawl *Vega.* Though storm bound for several days, he was able to map the reef of islands as far as the Midways, twenty-seven in all, and fifteen miles of coast on the main land. Considerable difficulty was experienced, on the return, in crowding the vessel through the ice which was rapidly forming. At one point the boat grounded in shoal water, and the party had to wade and work in the ice water for half an hour to get off. The season had been very open. Two caribou were secured on the trip, besides a plentiful supply of walrus and seal meat for the dogs. Mr. Leffingwell's letter was brought by a party of Eskimos overland to Fort Yukon, where it was postmarked Jan. 16, 1911; it arrived in Pasadena, Cal., on Feb. 26. Letters are expected later by way of Herschel Island, by the dog sledge mail of the Northwest Royal Mounted Police.

The programme Mr. Leffingwell had in view at the close of the Mikkelsen-Leffingwell Expedition (*Bulletin,* 1907), included the exploration of the area north of the Yukon-Arctic divide, and between the Colville River, and the Canadian boundary. Four years (which have nearly drawn to a close) he estimated would be necessary for the accomplishment of his task. In the first two seasons Mr. Leffingwell's work included tidal observations for three months at Flaxman Island; the mapping of a portion of the coast and about 100 miles of traverse in the interior; observations for latitude, longitude, and azimuth;

geological observations, including collections of fossils, studies of the Eskimo vocabulary and grammar; and meteorological observations for a complete year. Mr. Leffingwell continued his survey of the coast between Herschel Island and Point Barrow. About fifty miles of the Canning River, opposite Flaxman Island were mapped and the geological work in that region was completed.

He now expects to survey the coast between the Colville River and Demarcation Point. Four longitudes were secured by occultation during the winter of 1909-10, in addition to the four previously worked out by the United States Coast and Geodetic Survey.

The explorer's address is Barrow, Alaska. He will go for his mail about Aug. 1, and two months should be allowed for letters to reach Barrow. Supplies are to be forwarded to Mr. Leffingwell, through the Pacific Net & Twine Co., Seattle, and packages reaching the Company by May 1, will be included in the cargo to Flaxman Island.

LIEUT. FILCHNER'S PLANS. This explorer reported in January to his financial Committee, in charge of the finances of his coming enterprise that he expected to start for the Antarctic from Hamburg this Spring, on his ship the *Deutschland*. He will make oceanographical observations across the Atlantic to Buenos Aires and expects to leave that city in October for Sandwich Island, from which, late in December, he will start across Weddell Sea, expecting to make his headquarters perhaps on Coats Land, but preferably on some still unknown land further south.

His ship will return to the Atlantic to pursue oceanographical researches, leaving at the station ten men who will spend the winter in scientific studies. Upon the dawn of the summer of 1912, four men will start on a sledge journey across the unknown Antarctic area. It is hoped, during the winter, to establish supply câches for a considerable distance on the route. The sledges will be drawn by Manchurian ponies. The distance from Coats Land, south of the Atlantic, to Ross Sea, south of the Pacific, is over 1,800 miles and unless Filchner is favored with unusual conditions of travel, he cannot make the journey in a single summer. It is more probable that he will be compelled to winter in South Victoria Land, perhaps at quarters established by the British Expeditions. Eight specialists will constitute the scientific staff. This expedition hopes, as a part of its work, to ascertain if the land mass is of continental extent or whether it is, in fact, an archipelago.

ICE IN ARCTIC SEAS IN 1910. The Annual published in Danish and English by the Danish Meteorological Institute, under the title "The State of the Ice in Arctic Seas," has appeared for 1910. As usual, it is prepared by Commander C. I. Hansen, who has collected the information from institutions, mariners, men of science and others, who were in touch with the Arctic last year.

Whalers in the Greenland Sea reached Lat. 80° N. as early as May, though at Angmagsalik, the Danish station about 15° further south, the ice lay close in shore all summer and it was not until September that the station was reached by a ship. The coasts of Iceland were almost ice-free. The conditions were very bad at Spitzbergen and navigation in Horn Sound and Bell Sound was very difficult. The winter ice in Barents Sea, north of Norway broke up early and it was reported that a vessel reached Franz Josef Land but soon had to retreat. The sea was open all winter along the southwestern coast of Novaya Zemlia. A great deal of ice from East Greenland rounded Cape Farewell and blocked up the coast of Southwest Greenland as far north as Frederikshaab till the end of August. Hudson Strait and Bay were navigable in July, but the Bay did not become ice-free till August. Davis Strait and Baffin Bay were unusually free from ice. In April and May the ice limit in Bering Sea was farther south than usual. The conditions were normal in Beaufort Sea, to which our San Franciscan whalers resort, but were unfavorable along the coast of Northeast Siberia.

PHYSICAL GEOGRAPHY.

COMPARISON OF NORTH AMERICAN AND EUROPEAN GLACIAL DEPOSITS. American students of glacial deposits, especially those working in the Mississippi Valley, have divided the drift sheets into three or four divisions, interpreted as glacial stages separated by inter-glacial stages. The latest glacial stage is the Wisconsin preceded by the Illinoian, Kansan, and Pre-Kansan (or Nebraskan or Jerseyan). Four stages are also recognized in north Germany, the youngest being the young drift or upper Diluvian, preceded by the middle drift, the old drift or Saxonian, and the Scanian. In the Alps, Penck and Brückner have recognized the Würm, preceded by the Riss, Mindel and Günz.

Various attempts have been made at correlation of these different glacial stages of the two continents; but the most elaborate, as well as the most recent, is that by Leverett (*Zeitschr. für Gletscherk.*, Band iv, 1910, pp. 241-295 and 321-342). He is himself one of the chief students of the subject of differentiation of glacial deposits in America, and he spent "the year 1908 in western Europe in a study, which had for its aim a comparison and tentative correlation of the glacial deposits there with those of the United States, on the study of which he had been engaged since 1886." In his European studies Leverett was freely aided by a large number of the leading students of Pleistocene glaciation. Leverett admits that in spite of his long preparation in America and of his year's investigation in Europe, with the aid of a large number of eminent glacialists, "it would be presumptuous for one to pretend to clear up the matter of world-wide correlations of glacial deposits in a single year's study. . . . The full correlation, however, may in time be reached by repeated efforts of this sort."

The main body of Leverett's article consists of a detailed statement of the characteristics of deposits in different sections of Europe and America, and a discussion of the resemblances and the differences; and from this standpoint the article is one of very great importance and value to all students of Pleistocene glaciation, for it brings together, in summary, some of the main characteristics of deposits over a wide area and some of the main results of a great body of workers. The article closes with a series of paragraphs of summary and conclusions. He considers that there is little question of the correlation of the Nebraskan or Pre-Kansan drift with the Günz of the Alpine region. The second glacial stage, the Kansan, seems to correlate with the Mindel drift of the Alps, and the lower Diluvian of the North German lowland. The third glacial stage, called Illinoian in America, apparently has nothing that correlates with it in Europe, for the middle drift of the North German lowland and the Riss drift of the Alpine region, though representing the third glacial stage in these regions, each seems to be younger than the Illinoian drift. The Würm, Upper Diluvian, and Wisconsin drift seem to correlate fairly well. There are differences in detail, rendering some parts of this correlation less definite than one would expect. For instance, the Riss drift is more weathered than the loess-covered moraines of the Wisconsin drift and is doubtful as a possible equivalent of those moraines. The Würm drift correlates well with the loess-free moraines of America.

In his concluding paragraph Leverett says: "Although the variations in climate that give rise to glacial and interglacial stages seem to have been, world-wide in scope there are not such close correspondence in glaciation in either widely separated or in adjacent fields as one might expect to find. Perhaps the most remarkable of all the discordances is that of the time of maximum extent of the adjacent Labrador and Keewatin fields in America. Why one field should have had its greatest extent in the second glacial stage and the other in the third is not apparent. It constitutes one of the leading problems for American glacialists. The meteorological conditions of the Ice Age are as yet but little known. When they are cleared up much light may be shed upon what now seems to be glacial eccentricities. R. S. TARR.

ARCTIC TIDES. Dr. Rollin A. Harris, of the Coast and Geodetic Survey, has written a monograph ("Arctic Tides," 103 pp. and cotidal Map, Coast and Geodetic Survey, Washington, 1911) which brings together practically all available results pertaining to tides in Arctic waters. The work contains, in considerable detail, the remarkably accurate tidal observations along the northern coast of Grant Land and Greenland by the latest Peary Expedition as well as the observations at Flaxman Island and vicinity on the north coast of Alaska by the Mikkelsen and Leffingwell Expedition. The advantage of having all important tidal evidence in one publication is self-evident. In connection with the work, Dr. Harris has made numerous harmonic analyses and also expended much labor in unifying nonharmonic results from various sources. He says that, at the present time, observations are especially desired in the following regions or localities: the outer coast of Prince Patrick Island and Banks Land, the coasts of Mackenzie Province, the northwestern coast of Alaska, Wrangell Island and the Arctic coasts of Siberia.

Referring to Nansen's hypothesis that the unknown Polar region consists entirely of deep water, Dr. Harris considers that the decided westward drift observed by Mikkelsen and Leffingwell, off the northern coast of Alaska, is strong evidence against Nansen's faith in an unobstructed Polar Basin; and the westerly direction taken by the *Jeannette,* especially during the last five months of her drifting, does not suggest unobstructed deep water to the northward of East Siberia.

GLACIAL EROSION. In the last few years the writings in English upon the subject of glacial erosion have been mainly favoring the idea of extensive modification of topography by the erosive action of glaciers along lines of rapid movement. It is probably true that the great majority of glacialists are convinced that former, extensive glaciers have performed a vast amount of erosion. Not all, however, are convinced by the evidence, and among those who as yet remain unconvinced is Prof. E. J. Garwood, who, under the title of "Features of Alpine Scenery due to Glacial Protection," (*Geographical Journal,* Vol. 36, 1910, pp. 310-336) advances certain objections which he sees to the views of those who advocate extensive erosion, and puts forth a theory to account for phenomena that the majority of glacialists are assigning to glacial erosion. As the title indicates, his thesis is that ice is a protection rather than an agent of destruction, and he applies his argument mainly to the Alps, with which he is intimately familiar, though drawing some illustrations from the Himalayas and Spitzbergen, which he has also studied.

The phenomenon of hanging valleys, considered proof of profound glacial erosion by the majority of glacialists, he assigns to the work of streams issuing from the front of a glacier and cutting out a gorge, which has later been enlarged, involving slight deepening and considerable broadening, by ice erosion during an advance of the glacier. With each recession of glacier ice during an interglacial period, gorge cutting proceeds below the glacier terminus while above it the ice in the valley is protecting the valley bottom from erosion; with each advance of the ice the interglacial gorge is broadened by glacial erosion. Garwood correlates with this set of conditions a series of steps present in certain glaciated valleys, interpreting these as indexes of the positions which the glacier front held during the interglacial times.

While the glacial erosionist will probably feel that the argument is incomplete, in the first place in assigning to interglacial gorge formation far too much work, and in the author's failing clearly to see the evidence of differential ice erosion in the valley steps which puzzle him, one cannot but be impressed by the serious attempt to understand a difficult problem and to meet objections to the current theory which have appealed to him. The fairness with which Professor Garwood has approached the problem is clearly indicated by the paragraph with which he concludes his article, which reads as follows:

"The foregoing account is an attempt to show how certain features in the Alps may have arisen on the assumption that ice erodes less rapidly than other denuding agents, and may consequently be protective. It is, of course, possible that under certain other conditions ice may erode more vigorously than water; if so, then the results would naturally be reversed. Can it be possible that we meet with both these conditions even in the same district, perhaps even in the same valley? Can it be that in the higher valleys and slopes, ice has exerted a relatively protective influence, while in the lower portions of the valleys where many large affluents coalesced in a single valley, glacial excavation has been more vigorous. If this should be so, it will explain the different interpretations which different observers have placed on the facts they have observed. Further detailed observation alone will show." R. S. Tarr.

GENERAL.

French Geographical Congress. The 30th National Congress of the French Geographical Societies will open at Roubait on July 29, for a week. Prince Roland Bonaparte will be President. Special attention will be given to physical geography, anthropogeography, and to France and her colonies. Dr. Charles Droulers, President of the Commission of Organization, has sent a circular to foreign geographical societies inviting their members to prepare papers for the Congress. The latest date for the receipt of such communications is July 1 prox.

Maps for Aeronauts. The French have taken up the subject of preparing maps for the use of aeronauts. A sub-committee of the "Permanent Committee" on aerial navigation has been appointed to study the air ship maps in use, the various projects for their improvement and to evolve an experimental map.

Germany has been inviting attention to this subject for about two years. It was a feature of the German Geographical Congress at Lübeck in June, 1909. It was discussed by geographers, cartographers and aeronauts at the Berlin Airship Conference in November of that year and the Map Commission of the German Airship Union has been studying the question of the cartographic needs of aeronauts and how best to meet them. *Petermanns Mitteilungen* and other periodicals have published a number of experimental maps.

Some conclusions seem to have been reached as to essential features of an airship map. The topographical sheets of the European countries are regarded as an adequate basis upon which to impose or emphasize the information required. It is generally thought that the map scale should be three miles to an inch. Churches, steeples, castles, towers and other landmarks should be made especially conspicuous as also, rivers, railroads and settlements. Figures of the elevation of the highest points should be marked in red figures. Conspicuous colors should be used as warnings, showing, for example the position of telegraph lines and other impediments to landing. The location of repair shops and other special information needed by the navigator must be given graphically so that their meaning may easily and quickly be grasped.

OBITUARY.

DR. ALEXANDRE SCHENK. Dr. Schenk, professor of anthropology at the University of Lausanne, Switzerland, is dead at the age of 36 years. The *Bulletin* de la Soc. Neuchateloise de Géogr., for 1909-1910, contains the third part of Dr. Schenk's "Étude sur l'Anthropologie de la Suisse," the first two parts having appeared in the two preceding volumes. At the time of his death the fourth and concluding part of the work was in preparation.